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Global Bio-based High-temperature Nylon Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Bio-based High-temperature Nylon market size is expected to reach $ 489 million by 2032, rising at a market growth of 5.3% CAGR during the forecast period (2026-2032).

Bio-based high-temperature nylon is a high-performance polyamide material synthesized by copolymerizing renewable biomass monomers such as bio-based dibasic acids and bio-based diamines with petrochemical modified monomers. It integrates low-carbon environmental advantages and excellent comprehensive properties including high temperature resistance, high strength, chemical corrosion resistance and good dimensional stability. It can serve stably under long-term high-temperature working conditions, reduce reliance on petrochemical resources and carbon emissions, and is widely used in automotive parts, electronic and electrical components, industrial precision parts and other high-end fields, acting as a promising emerging engineering plastic to replace traditional fully petrochemical high-temperature nylon.In 2025, the global market size of bio-based high-temperature nylon reached 331 million US dollars.

Bio-based high-temperature nylon is a type of engineering plastic produced from renewable resources through bio-fermentation or chemical conversion, yielding high-performance nylon monomers that are then polymerized into heat-resistant, high-strength materials. Its industry chain can be analyzed in three segments: upstream, midstream, and downstream. In the upstream segment, primary raw materials such as sugarcane and corn starch are converted into monomers like bio-based adipic acid or ?-caprolactam. This segment offers environmental benefits by reducing reliance on fossil resources and lowering carbon emissions, but it faces challenges in raw material price volatility, supply stability, and strict requirements for monomer purity. The

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midstream segment involves polymerization and processing, turning bio-based monomers into high-temperature nylon through injection molding, extrusion, or fiber spinning. Modifications such as glass fiber reinforcement, flame retardants, or mineral fillers enhance thermal resistance, mechanical properties, and long-term stability. Midstream competitiveness largely depends on mastering high-temperature performance and modification technologies. The downstream segment covers applications in automotive electronics, engine components, aerospace, precision machinery, and electronic enclosures, where performance, lightweight properties, and environmental friendliness are key. Bio-based high-temperature nylon benefits from sustainability and green credentials, driven by automotive lightweighting, energy efficiency, and green supply chain initiatives. Despite slightly higher costs, it demonstrates strong competitiveness and potential in high-end engineering plastic markets. The industry chain reflects a complete cycle from renewable raw materials to high-performance applications, representing a critical direction for future environmentally friendly, high-performance materials.

This report studies the global Bio-based High-temperature Nylon production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Bio-based High-temperature Nylon and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Bio-based High-temperature Nylon that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Bio-based High-temperature Nylon total production and demand, 2021-2032, (Tons)
Global Bio-based High-temperature Nylon total production value, 2021-2032, (USD Million)
Global Bio-based High-temperature Nylon production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Tons), (based on production site)
Global Bio-based High-temperature Nylon consumption by region & country, CAGR, 2021-2032 & (Tons)
U.S. VS China: Bio-based High-temperature Nylon domestic production, consumption, key domestic manufacturers and share
Global Bio-based High-temperature Nylon production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Tons)
Global Bio-based High-temperature Nylon production by Synthesis Route, production,

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value, CAGR, 2021-2032, (USD Million) & (Tons)
Global Bio-based High-temperature Nylon production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Tons)

This report profiles key players in the global Bio-based High-temperature Nylon market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Arkema, BASF, DuPont, Syensqo, Evonik, Envalior, EMS Group, AKRO-PLASTIC, Radici Group, Toray, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Bio-based High-temperature Nylon market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Tons) and average price (US$/Ton) by manufacturer, by Synthesis Route, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Bio-based High-temperature Nylon Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

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Rest of World

Global Bio-based High-temperature Nylon Market, Segmentation by Synthesis Route:

Oil-based route

Sugar-based route

Others

Global Bio-based High-temperature Nylon Market, Segmentation by Modified Material:

Glass fiber reinforced bio-based PPA

Carbon fiber reinforced bio-based PPA

Mineral filled bio-based PPA

Unreinforced pure resin

Others

Global Bio-based High-temperature Nylon Market, Segmentation by Application:

Automotive

Electronics

Marine

Construction

Aerospace

Consumer and Industrial Goods

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Others

Companies Profiled:

Arkema

BASF

DuPont

Syensqo

Evonik

Envalior

EMS Group

AKRO-PLASTIC

Radici Group

Toray

Asahi Kasei

Mitsubishi Chemical

Kingfa

Cathay Biotech

Zhejiang Xinli New Materials

Key Questions Answered:

1. How big is the global Bio-based High-temperature Nylon market?

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2. What is the demand of the global Bio-based High-temperature Nylon market?
3. What is the year over year growth of the global Bio-based High-temperature Nylon market?
4. What is the production and production value of the global Bio-based High-temperature Nylon market?
5. Who are the key producers in the global Bio-based High-temperature Nylon market?
6. What are the growth factors driving the market demand?

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